

Amendments to the Claims

Please amend Claims 1, 3-8, 15 and 16, and add new Claims 19-21 to read as follows.

1. (Currently amended) A printing apparatus which performs printing by scanning moving a carriage unit, capable of holding a printhead having a plurality of heater resistances, over a print medium based on information transmitted by an external apparatus, a voltage control unit for controlling the printhead comprising:

reception means for receiving an information signal, related to a property of the heater resistances, transmitted from the printhead; and

a voltage generation means control unit for generating adjusting a voltage which is adjusted generated in the printing apparatus to drive the printhead based on the information signal received by said reception means, wherein said voltage control unit is provided on the carriage unit.

2. (Original) The printing apparatus according to claim 1, wherein said voltage generation means is a DC/DC converter which transforms a DC voltage to be applied to the printhead into a value appropriate for driving a mounted head.

3. (Currently amended) The printing apparatus according to claim 1, wherein the information signal includes an identification signal for identifying a type of the

printhead, and said voltage ~~generation means~~ control unit controls the voltage in accordance with the identification signal.

4. (Currently amended) The printing apparatus according to claim 1, wherein the information signal includes a signal indicative of a variation of a plurality of heater resistances provided in the printhead, and said voltage ~~generation means~~ control unit controls the voltage in accordance with the signal.

5. (Currently amended) The printing apparatus according to claim 1, wherein the information signal includes a signal indicative of temperature data of the printhead, and said voltage ~~generation means~~ control unit controls the voltage in accordance with the signal.

6. (Currently amended) The printing apparatus according to claim 1, wherein a detection resistance is provided inside the printhead for detecting a value reflecting heater resistances for printing, and said voltage ~~generation means~~ control unit comprises an internal resistance connected in series with the detection resistance,

wherein said voltage ~~generation means~~ control unit compares a reference voltage, divided by the internal resistance and the detection resistance, with a driving voltage which drives the printhead, then controls the driving voltage so as to cancel an error in these voltages, and adjusts the driving voltage in accordance with a variation of a load resistance value of the printhead so as to correct the variation.

7. (Currently amended) The printing apparatus according to claim 1, wherein the printhead includes a diode for detecting a temperature, and said voltage ~~generation means~~ control unit comprises an internal resistance connected in series with the diode,

wherein said voltage ~~generation means~~ control unit compares a reference voltage, divided by the internal resistance, detection resistance provided inside the printhead, and the diode, with a driving voltage which drives the printhead, then corrects an error in these voltages, and generates a control voltage for optimizing power supplied to heat the printhead, so as to discharge ink in accordance with a temperature variation of the printhead.

8. (Currently amended) The printing apparatus according to claim 1, further comprising:

a plurality of heat sources for generating bubble generation heat for driving in nozzle units;

driving pulse generation means for generating a pulse train which drives the plurality of heat sources; and

heat source number detection means for detecting a number of the plurality of heat sources driven simultaneously,

wherein said voltage ~~generation means~~ control unit adjusts a voltage outputted to the heat sources based on a signal from said heat source number detection means.

9. (Previously presented) The printing apparatus according to claim 1, wherein said heat source number detection means detects the number of the plurality of heat sources driven simultaneously based on an image data signal.

Claims 10-14 (cancelled)

15. (Currently amended) The printing apparatus according to claim 1, wherein the printhead has printing elements for performing a printing processing, and said voltage generation means control unit generates the voltage according to a number of the printing elements to be driven.

16. (Currently amended) The printing apparatus according to claim 15, wherein said voltage generation means control unit receives the information signal according to the number of the printing elements to be driven, and generates controls the voltage based on the received information signal.

17. (Previously presented) The printing apparatus according to claim 15, wherein the number of the printing elements to be driven is the number of printing elements driven simultaneously.

18. (Previously presented) The printing apparatus according to claim 1, wherein printing is effected by ejecting ink from the printhead.

19. (New) The printing apparatus according to claim 1, further comprising a main board for controlling the printing apparatus, wherein said voltage control unit adjusts the voltage outputted from said main board.

20. (New) In combination, a print head and a printing apparatus which performs printing by moving a carriage unit, capable of holding said printhead having a plurality of heater resistances, over a print medium based on information transmitted by an external apparatus,

said printhead comprising:

a switching device for controlling each of the plurality of heater resistances; and

a detection resistance having a property corresponding to a resistance property of the heater resistances;

said printing apparatus comprising:

a voltage control unit for adjusting a driving voltage generated in said printing apparatus,

wherein said detection resistance is manufactured by the same semiconductor deposition process as the heater resistances, and said voltage control unit is provided on the carriage unit.

21. (New) The combination according to claim 20, wherein said voltage control unit comprises:

a voltage converter for providing a voltage to the heater resistances;

a PWM controller for controlling a pulse signal inputted into said voltage converter in order to adjust the voltage provided by said voltage converter;

first internal resistances for dividing the voltage provided by said voltage converter into a first divided voltage;

a second internal resistance, connected with said detection resistance, for dividing a voltage into a second divided voltage; and

a comparison circuit for comparing the first divided voltage with the second divided voltage, and outputting a comparison result to said PWM controller.